



Countries

Togo and Benin

Client

Communauté Electrique du Bénin

Date

1997-2009

Prestations de Sogreah

- ▶ Preparation of CEB standards
- ▶ Detailed design study
- ▶ Human and physical environmental impact assessment
- ▶ Tender documentation
- ▶ Prequalification of applicants
- ▶ Tender evaluation and awarding of contracts
- ▶ Supervision of works in Benin



Context

The North Togo and North Benin Interconnection project aims at connecting the northern areas in Togo and Benin to the existing southern network. This project is a key factor in the economic development of the northern regions.

Description

The project comprises 540 km of 161 kV transmission line and 76 km of 63 kV transmission line, extension of the existing Atakpamé HV/MV substation in Togo, implementation of new substations at Kara (Togo), Djougou, Parakou, Natitingou and Bembéréké (Benin).

This project also includes rural electrification to supply the villages located along the HV line with electricity. A three-phase 34.5 kV supply system involving isolated shield wires is planned for this purpose. In addition, one of the two shield wires is equipped with optical fibres for data transmission and in the future, connection to Lomé dispatch centre.

Technical characteristics

- ◆ Overhead 161 kV, single-circuit transmission line with two isolated shield wires, square-based steel pylons with triangle configuration, 500 MCM main

conductor, 253.35 mm² in cross-section, ACSR Minorca shield wire, 88.80 mm² in cross-section

- ◆ HV/MV substations of conventional outdoor type, 161/22/34.5 kV power transformers, 161 kV line and 20 kV line bays, reactances, one- or two-floor control building, SCADA system for data transmission, remote control and telecommunications via power line carrier and optical fibres.
- ◆ Rural electrification by isolated shield wires supplied at 34.5 kV.

MV distribution is of three-phase type, two phases formed by the shield wires and the third by the earth. The three phases are balanced by capacitors.

Supervision of works in Benin

- ◆ Lot 1b: HV/MV substations in Benin, at Djougou and Parakou;
- ◆ Lot 3: 161 kV HV transmission line in Benin: section from the Benin/Togo border to Djougou-Parakou;
- ◆ Lot 4: 161 kV HV transmission line in Benin: interconnection

with Natitingou and Bembéréké.

Performance of works

Phase 1: Project coordination, supervision and management

Phase 2: Checking of design studies and fabrication

- ◆ Technical verification of working design studies
- ◆ Checking, testing and acceptance procedures during fabrication

Phase 3: Supervision of works on site

- ◆ Checking of works implementation on site
- ◆ Assistance with operation and maintenance
- ◆ Assistance with environmental issues
- ◆ Commissioning tests and checking on completion of works

Phase 4: Assistance to CEB during the guarantee period, training